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## NOTICE OF ALLOWANCE AND FEE(S) DUE

24739 7590 07/31/2009

CENTRAL COAST PATENT AGENCY, INC  
3 HANGAR WAY SUITE D  
WATSONVILLE, CA 95076

EXAMINER

CHOU, ALBERT T

ART UNIT

PAPER NUMBER

2416

DATE MAILED: 07/31/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/820,497

04/07/2004

Devendra Y. Raut

P8900

7406

TITLE OF INVENTION: EDGE-ROUTER SCALING FOR BGP PEERING WITH VIRTUAL PRIVATE ROUTED NETWORKS (VPRN)

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	11/02/2009

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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24739 7590 07/31/2009

**CENTRAL COAST PATENT AGENCY, INC  
3 HANGAR WAY SUITE D  
WATSONVILLE, CA 95076**

**Note:** A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/820,497 04/07/2004 Devendra Y. Raut P8900 7406

**TITLE OF INVENTION: EDGE-ROUTER SCALING FOR BGP PEERING WITH VIRTUAL PRIVATE ROUTED NETWORKS (VPRN)**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 11/02/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
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CHOU, ALBERT T 2416 370-389000

**1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).**

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

**2. For printing on the patent front page, list**

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

**4a. The following fee(s) are submitted:**

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

**4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)**

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

**5. Change in Entity Status (from status indicated above)**

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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10/820,497	04/07/2004	Devendra Y. Raut	P8900	7406
24739	7590	07/31/2009	EXAMINER	
CENTRAL COAST PATENT AGENCY, INC 3 HANGAR WAY SUITE D WATSONVILLE, CA 95076			CHOU, ALBERT T	
			ART UNIT	PAPER NUMBER
			2416	
DATE MAILED: 07/31/2009				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 882 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 882 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability**

Application No.

10/820,497

Examiner

ALBERT T. CHOU

Applicant(s)

RAUT ET AL.

Art Unit

2416

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Appeal Brief Filed on 3 June 2009.
2. ☒ The allowed claim(s) is/are 1,3,4,6,8,9,11,13 and 14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|  | 9. <input type="checkbox"/> Other _____.   |

**DETAILED ACTION**

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Donald Boys on July 27, 2009.

The application has been amended as follows:

- Claims 1, 6, 8, 9, 11, 13 and 14 have been amended as shown in attached sheets (5 pages).
- Claims 2, 5, 7, 10, 12 and 15 have been canceled.

***Allowable Subject Matter***

2. Claims 1, 3, 4, 6, 8, 9, 11, 13 and 14 are allowed.

***Reasons for Allowance***

3. The following is an examiner's statement of reasons for allowance.

The prior art does not teach or fairly suggest the following:

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(a) a first and a second scheduler managing all events for processing by the processor resource;

(b) a first and a second ready list dedicated respectively to the first and second scheduler; and

(c) pipelines dedicated to VPRNs communicate with the first scheduler and ready list, pipelines dedicated to BGP peers that are not VPRNs communicate with the second scheduler and ready list, and wherein events received for processing are posted in their dedicated event pipelines according to the source of the events, as specified in claims 1, 6 and 11.

The closest prior art, Alfieri et al., (“Alfieri” US Patent 7,039,720) in view of Vaitzblit et al. (“Vaitzblit” US Patent 5,528,213), teaches

(a) a scheduler for scheduling all (three classes) of schedulable tasks;

(b) a block of schedule flags for all schedulable tasks to insert the flags to schedule tasks; and

(c) the single scheduler is based on “a combination of weighted round-robin and rate monotonic scheduling algorithms” as opposed to “the associated scheduler repetitively scans the ready list sequentially” as disclosed by the present application.

Therefore, Alfieri or Vaitzblit, either singularly or in combination, fails to anticipate or render the above limitations obvious.

Claims 3-4, 8-9 and 13-14 depend from independent claims 1, 6, and 11, respectively. These claims include the limitations to the allowable claims 1, 6 and 11, and, therefore, are allowable for the same reasons as stated in the above paragraphs of this office action.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No. 6,625,750 to Duso et al. disclose "Hardware And Software Failover Services For A File Server"
- US Patent No. 7,242,665 to Langille et al. disclose "Network Device Virtual Interface"
- US Patent Application Pub. No. 2005/0138622 A1 by McAlpine et al. disclose "Apparatus And Method For Parallel Processing Of Network Data On A Single Processing Thread"

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham, can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Albert T Chou/

Examiner, Art Unit 2416

July 28, 2009



### ATTACHMENT

1. (Currently amended) An edge router operating Border Gateway Protocol (BGP) in a packet network comprising:

a processor resource for processing events;

~~at least one~~ a first and a second scheduler managing ~~all~~ events for processing by the processor resource;

~~at least one~~ a first and a second ready list dedicated respectively to the first and second scheduler; and

individual event pipelines dedicated to individual ones of BGP peers;

wherein individual ones of the BGP peers are virtual private routed networks (VPRNs), pipelines dedicated to VPRNs communicate with the first scheduler and ready list, pipelines dedicated to BGP peers that are not VPRNs communicate with the second scheduler and ready list, and wherein events received for processing are posted in their ~~associated~~ dedicated event pipelines according to the source of the events, pipelines having events to be processed insert a flag in the associated ready list, and the associated scheduler repetitively scans the ready list sequentially, and releases events to the processor resource with preset limitation per pipeline.

2. (Cancelled) ~~The edge router of claim 1 wherein individual ones of the BGP peers are virtual private routed networks (VPRNs) away from the packet network.~~

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3. (Original) The edge router of claim 1 wherein the preset limitation is a time limitation.

4. (Original) The edge router of claim 1 wherein the preset limitation is a buffer limitation.

5. (Cancelled) ~~The edge router of claim 2 comprising a first and a second scheduler, a first and a second ready list, and pipelines dedicated to events associated with both VPRNs and core BGP peers in the service provider network, wherein the pipelines associated with VPRNs communicate with the first scheduler and the first ready list, and the pipelines associated with the core BGP peers communicate with the second scheduler and the second ready list.~~

6. (Currently amended) A method for processing events in Border Gateway Protocol (BGP) peering in an edge router in a packet network, wherein individual ones of the BGP peers are Virtual Private Routed Networks (VPRNs) comprising acts of:

(a) placing received events associated with BGP peers in dedicated pipelines according to the BGP source;

(b) flagging a first ready list by individual pipelines associated with VPRNs having events ready to be processed; and

(c) flagging a second ready list by individual pipelines associated with BGP peers that are not VPRNs having events ready to be processed; and

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[[ (c ) ] ] (d) scanning the first and the second ready list sequentially and repeatedly by a first scheduler dedicated to the first ready list, and a second scheduler dedicated to the second ready list, the ~~scheduler~~ schedulers sending events for each pipeline to be processed to a processing resource according to a preset limitation per pipeline.

7. (Cancelled) ~~The method of claim 6 wherein individual ones of the BGP peers are virtual private routed networks (VPRNs) away from the packet network.~~

8. (Currently amended) The method of claim 6 wherein in act [[ (c ) ] ] (d) the preset limitation is a time limitation.

9. (Currently amended) The method of claim 6 wherein in act [[ (c ) ] ] (d) the preset limitation is a buffer limitation.

10. (Cancelled) ~~The method of claim 7 comprising a first and a second scheduler, a first and a second ready list, and pipelines dedicated to events associated with both VPRNs and core BGP peers in the service provider network, wherein the pipelines associated with VPRNs communicate with the first scheduler and the first ready list, and the pipelines associated with the core BGP peers communicate with the second scheduler and the second ready list.~~

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11. (Previously presented) A machine-readable medium having stored there on a set of instructions that cause a machine to perform a method for processing events in Border Gateway Protocol (BGP) peering in an edge router in a packet network, including:

(a) placing received events associated with BGP peers in dedicated pipelines according to the BGP source;

(b) flagging a first ready list by individual pipelines associated with VPRNs having events ready to be processed; ~~and~~

(c) flagging a second ready list by individual pipelines associated with BGP peers that are not VPRNs having events ready to be processed; and

[[ (c) ]] (d) scanning the first and the second ready list sequentially and repeatedly by a first scheduler dedicated to the first ready list, and a second scheduler dedicated to the second ready list, the scheduler schedulers sending events for each pipeline to be processed to a processing resource according to a preset limitation per pipeline.

12. (Cancelled) ~~The medium of claim 11 wherein, in the method, individual ones of the BGP peers are virtual private routed networks (VPRNs) away from the packet network.~~

13. (Currently amended) The medium of claim 11 wherein in act [[ (c) ]] (d) the preset limitation is a time limitation.

14. (Currently amended) The medium of claim 11 wherein in act [[ (c) ]] (d) the preset limitation is a buffer limitation.

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15. (Cancelled) ~~The medium of claim 12 wherein the method comprises a first and a second scheduler, a first and a second ready list, and pipelines dedicated to events associated with both VPRNs and core BGP peers in the service provider network, wherein the pipelines associated with VPRNs communicate with the first scheduler and the first ready list, and the pipelines associated with the core BGP peers communicate with the second scheduler and the second ready list.~~